

REMARKS

Claims 1-6 remain in the application, the claims having been amended to more clearly define the invention. Reconsideration of the application and allowance of all claims are respectfully requested in view of the above amendments and the following remarks.

Applicants affirm the election of claims 1-5. Claim 6 has been canceled without prejudice to the filing of a divisional application directed to this subject matter.

Appropriate section headings have been added to the specification.

Submitted herewith is a corrected drawing sheet wherein Fig. 1 is labeled as prior art.

The claims have been editorially amended as requested by the examiner.

The rejection for anticipation by Chang et al is respectfully traversed.

The present invention is directed to an improved protection arrangement for a WDM transmission network. As indicated in the Background discussion at page 1, the communications resources involved are the equipment units, multiplexers, communications channels and connections, together with other transmission, processing or like elements involved in calls. These are duplicated to prevent interruption of calls in the event of a breakdown. The goal of the present invention is to provide an improved way of managing the allocation of protection resources to active resources. The improvement according to the invention is the use of a model controlling switching between active and protection resources, wherein the model uses groups of protection resources associated with a specific flow direction.

According to a preferred embodiment of the invention, the model includes a dedicated unidirectional protection group at the receiving end and a dedicated unidirectional group at the sending end, with each unidirectional group using different protection resources and being commanded independently of the other group. A bidirectional protection group can be provided,

e.g., with a higher priority than the unidirectional groups, for use in the case of bidirectional traffic.

With reference to Fig. 2 and the description at the bottom of page 7, if source TP(a) fails at the sending end, the source TP(c) can be used instead. In the prior art, with only bidirectional protection available, the switching from source TP(a) to source TP(c) would mean that the entire channel from source TP(a) to receiver TP(a) would be switched over to a protection channel using source TP(c) and receiver TP(c). But then if the receiver TP(b) failed at the receiving end, the protection receiver TP(c) would not be available. According to the present invention, when source TP(a) fails, the sending end switches over to source TP(c), but leaves in place the resources used at the receiving end. In case of failure affecting both ends, the bidirectional protection takes over.

Chang et al is directed to a 1+1 protection arrangement wherein each working fiber has an associated protection fiber. This is illustrated, e.g., in Fig. 7 where there are two rings each having a working fiber 54 with signal flowing only in the counterclockwise direction around the ring and a protection fiber 56 with signal flow only in the clockwise direction around the ring. The fibers 64 and 66 are working and protection add fibers, and the fibers 68 and 70 are working and protection drop fibers, respectively.

The examiner has referred to lines 20-25 of column 11 as support for the claimed limitation of a resource organization or information model. But lines 20-25 of column 11 simply point out that the working and protection fibers in a 1:1 protection scheme already carry the same signals so there is no need to interconnect them. The undersigned does not see support for this claim limitation and respectfully requests that the examiner point out such support if the rejection is to be maintained.

The examiner has not identified any protection “groups” in Chang et al.

Having failed to identify any “groups” at all, the examiner has certainly not identified groups using resources associated with a specific flow direction.

As to the flow direction, the examiner has stated that the flow directions would be the directions around the rings. But there is only one direction of signal flow around each ring, and that is counterclockwise.

To avoid the misreading of claim 1, the claim has been clarified to describe sending and receiving directions. Thus, a node sending information along the ring will be a sending node, and a node receiving the signaling would be a receiving node. The sending and receiving directions are the same if one considers “direction” from the viewpoint of the ring itself, but if the direction is considered relative to the nodes themselves, the sending node is sending signaling outbound (the sending direction) and the receiving node is receiving signaling inbound (the receiving direction). In Chang et al, there is no discussion of a group of protection resources associated with a sending direction and another group of protection resources associated with a receiving direction. This is, for example, due to the fact that Chang et al is concerned only with the fiber connecting two nodes, and a failed fiber is replaced with a protection fiber between the two nodes. There is no discussion of protection of resources at the sending end (e.g., equipment units or multiplexers at one end as mentioned at lines 12-15 of page 1) that might fail and could be protected transparently to the receiving end.

Since Chang et al does not teach or suggest protection groups associated with one of send and receive directions and which use different protection resources, as recited in claim 1, it is respectfully submitted that claim 1 and its dependent claims 2-5 patentably distinguish over the prior art.

Amendment Under 37 C.F.R. § 1.111
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It is noted that there are some embodiments, e.g., Figs. 12-14 of Change, which include working fibers in both directions. But with the clarifying amendment to claim 1 which now describes the invention in the context of sending and receiving directions, it is not possible to inadvertently read the language of the claims on even these embodiments of Chang et al. There is no suggestion that one group of protection resources will be used to protect against failure in a sending direction and another group of protection resources used for protection against failure in a receiving direction.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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AMENDMENTS TO THE DRAWINGS

Per the Examiner's request, attached please find one (1) sheet of replacement drawings labeling Figure 1 as "Prior Art".

Attachment: Replacement Sheet(s)